

1 **CLAIMS**

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5 1. A spray coolant reservoir system, comprising:

6 a chassis having a spray chamber;

7 a spray unit within said spray chamber for dispensing coolant upon an item to
8 be thermally managed;

9 a coolant system fluidly connected to said spray unit and said spray chamber,
10 wherein said coolant system provides pressurized coolant to said spray unit;

11 a reservoir fluidly connected to said coolant system, wherein said reservoir is
12 capable of storing a volume of coolant; and

13 a control system in communication with said coolant system and said reservoir
14 for controlling a flow of coolant between said reservoir and said coolant system.
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17 2. The spray coolant reservoir system of Claim 1, including an intake valve
18 fluidly connected to said coolant system, wherein said intake valve is also fluidly
19 connected to said spray chamber and to said reservoir.
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22 3. The spray coolant reservoir system of Claim 2, wherein said intake valve
23 diverts coolant input flow to said coolant system from said reservoir when coolant
24 flow from said spray chamber is hindered.
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27 4. The spray coolant reservoir system of Claim 2, wherein said intake valve
28 allows coolant input flow to said coolant system solely from said spray chamber during

1 normal operation and from said reservoir when coolant flow from said spray chamber
2 is hindered.

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5 5. The spray coolant reservoir system of Claim 2, wherein said intake valve
6 allows coolant input flow to said coolant system solely from said spray chamber during
7 normal operation and jointly from said reservoir when coolant flow from said spray
8 chamber is hindered.

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11 6. The spray coolant reservoir system of Claim 1, including an output valve
12 fluidly connected to said coolant system, wherein said output valve is also fluidly
13 connected to said spray unit and to said reservoir.

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16 7. The spray coolant reservoir system of Claim 6, wherein said output valve
17 allows coolant output flow solely to said spray unit from said coolant system during
18 normal operation.

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21 8. The spray coolant reservoir system of Claim 6, wherein said output valve
22 diverts coolant output flow from said coolant system to said reservoir to fill said
23 reservoir.

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26 9. The spray coolant reservoir system of Claim 1, wherein said reservoir
27 includes a chamber port fluidly connected to spray chamber for selectively allowing
28 pressure equalization.

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10. The spray coolant reservoir system of Claim 1, wherein said reservoir is positioned within said chassis.

11. The spray coolant reservoir system of Claim 1, wherein said reservoir is positioned external of said chassis.

12. The spray coolant reservoir system of Claim 1, wherein said reservoir includes a fill port and a drain port.

13. The spray coolant reservoir system of Claim 1, wherein said reservoir includes a vent port.

14. A method of operating a spray coolant reservoir system, said method comprising the steps of:

- (a) drawing a first coolant flow from a spray chamber to provide a supply coolant flow to a spray unit positioned within said spray chamber; and
- (b) drawing a second coolant flow from a reservoir to provide said supply coolant flow to said spray unit if said first coolant flow is hindered.

15. The method of operating a spray coolant reservoir system of Claim 14, wherein step (b) includes terminating said first coolant flow.

1 16. The method of operating a spray coolant reservoir system of Claim 14,
2 including diverting said supply coolant flow from said spray unit to said reservoir to
3 fill said reservoir.

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6 17. A method of controlling pressure within a spray chamber using a reservoir,
7 said method comprising the steps of:

8 (a) closing a chamber port fluidly connected between a reservoir and a spray
9 chamber;

10 (b) opening a vent port within said reservoir;

11 (c) opening an intake valve to said spray chamber if reducing a spray chamber
12 pressure or opening said intake valve to said reservoir if increasing said spray chamber
13 pressure;

14 (d) opening an output valve to said reservoir if reducing said spray chamber
15 pressure or opening said output valve to said spray chamber if increasing said spray
16 chamber pressure;

17 (e) operating a pump unit fluidly connected between said intake valve and said
18 output valve; and

19 (f) terminating said pump unit after said spray chamber pressure attains a
20 desired pressure level.

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23 18. The method of controlling pressure within a spray chamber using a
24 reservoir of Claim 17, including the following steps:

25 (g) closing said vent port; and

26 (h) opening said chamber port.